REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks.

Independent claims 1 and 10 have been amended to include a feature of claims 5 and 13, respectively. Claim 5 has been canceled accordingly without prejudice or disclaimer. Claim 13 has been amended to delete the feature now included in claim 10. No new matter is added. Claims 1-4 and 6-14 are pending.

Claims 1-14 are rejected under 35 USC 102(b) as being anticipated by Atwood et al. (US 5,475,610). Applicants respectfully traverse the rejection.

Independent claim 1 is directed to a method of raising a temperature of an object contained hermetically in a container to a predetermined temperature and requires a step where the temperature of the contained object is calculated based on a pre-examined correlation between an object-container temperature difference and the ambient temperature when a predetermined time passes from the beginning of temperature raising.

With the above arrangement, it is possible to readily know the desired physical quantity (i.e., the estimated temperature of the contained object) by directly applying the measured container's temperature and the ambient temperature to the pre-examined correlation.

Atwood fails to teach or suggest the use of the pre-examined correlation of claim 1 to calculate the temperature of the contained object. The rejection contends that Atwood estimates the temperature of the sample liquid based on the thermal time constant of the system (col. 28, lines 25-38, Equation 6). However, Equation 6 including the thermal time constant of the system in Atwood does not teach the pre-examined correlation of claim 1. Equation 6 expresses the temperature of the sample liquid as a function of the thermal time constant and delta T where delta T is the temperature difference between the temperature of the sample block 12 and the temperature of the sample liquid. The thermal time constant is the heat capacity of sample divided by the thermal conductance from sample well wall to the sample liquid. Obviously, the thermal time constant is determined by the inherent physical properties of the sample liquid and

the sample well wall (i.e., heat capacity, thermal conductance) and is a constant for a particular sample liquid and a particular sample well wall. Atwood teaches that the thermal constant depends on the wall thickness and is completely silent as to the relation between the thermal time constant and the temperature therein. Therefore, Equation 6 expresses a correlation between a sample-liquid--sample-block temperature difference and the sample liquid temperature, not the pre-examined correlation of claim 1 where the correlation is between an object-container temperature difference and the ambient temperature.

Even if the thermal time constant of Atwood depends on the ambient temperature, which the Applicants do not concede, it would not be obvious to achieve the pre-examined correlation of claim 1 because Atwood does not teach how to correlate the sample liquid temperature to the ambient temperature using the dependency of the thermal time constant on the ambient temperature, let alone to calculate the estimated temperature of the sample liquid by using the correlation.

For at least these reasons, claim 1 is patentable over Atwood. Claims 2-4 and 5-9 depend from claim 1 and are patentable therewith and need not be separately distinguished. Applicants do not concede the rejections to the dependent claims.

Independent claim 10 is directed to a method of raising a temperature of a contained object sealed in a container and requires a step where the amount of heat energy necessary for raising the temperature of the contained object up to the predetermined temperature is calculated based on a pre-examined correlation between the ambient temperature and a difference between the temperatures of the contained object and the container when a predetermined time passes.

With the above arrangement, it is possible to readily know the desired physical quantity (i.e., the amount of heat energy) by directly applying the measured container's temperature and the ambient temperature to the pre-examined correlation.

Atwood fails to teach or suggest the use of the pre-examined correlation of claim 10. For similar reasons discussed above regarding claim 1, Atwood discloses a correlation between the sample liquid temperature and a difference between the temperatures of the sample liquid and the sample block, not the pre-examined correlation

between the ambient temperature and a difference between the temperatures of the contained object and the container, as required by claim 10.

Nowhere does Atwood teach or suggest the use of the pre-examined correlation of claim 10 to calculate the necessary amount of heat energy. For example, the Equations (3), (4) and (5) of Atwood, teach a correlation between the heat energy to the sample block 12 and some variables concerning the temperature of the sample block 12, the ambient temperature by the sensor 56, and the coolant control system 24 (col. 25, line 44 to col. 26, line 16). None of the Equations teaches a pre-examined correlation between the ambient temperature and a difference between the temperatures of the contained object and the container, as required by claim 10.

For at least these reasons, claim 10 is patentable over Atwood. Claims 11-14 depend from claim 10 and are patentable therewith and need not be separately distinguished. Applicants do not concede the rejections to the dependent claims.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. Box 2902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: January 28, 2011

By: _____
Douglas P. Mueller
Reg. No. 30,300
DPM/yd